

Claims

[c1] A dual wall cooking vessel, the vessel comprising:

- a) an inner vessel having a bottom portion surrounded by vertical walls terminating at an inner rim to form an inner surface for containing fluids,
- b) an outer vessel having a bottom portion surrounded by vertical walls terminating at an outer rim to form an inner surface capable of containing fluids and surrounding the inner vessel,
- c) wherein the inner vessels is nested within the outer vessel such that the inner rim and the outer rim are concentrically aligned with each other, and a cavity is formed between the inner surface of the outer vessel and the outer surface of the inner vessel,
- d) a thermally conductive material interposed between the inner surface of the outer vessel and the outer surface of the inner vessel, said material bonding the inner and outer vessel together, and extending over the bottoms of the inner and outer vessel and upward to partially fill a portion of the cavity adjacent to the bottom portion of each of said inner and said outer vessel.

[c2] A dual wall cooking vessel according to claim 1 wherein the inner and outer rim are in contact and welded together to form a substantially hermitic cavity.

[c3] A dual wall cooking vessel according to claim 1 wherein the rim of the inner vessel flairs outward in a substantially vertical direction and includes a concave upward facing portion for receiving a the matting edge of a cover for the cooking vessel.

- [c4] A dual wall cooking vessel according to claim 3 further comprising a cover that mates with the concave upward portion of the rim to form a waterless cooking vessel.
- [c5] A dual wall cooking vessel according to claim 1 wherein the thermally conductive material comprises one or more layers of aluminum or an alloy thereof.
- [c6] A dual wall cooking vessel according to claim 5 wherein the thermally conductive material includes copper sheet interposed between the two or more layers of aluminum.
- [c7] A dual wall cooking vessel according to claim 1 wherein the wherein the copper sheet is perforated and the aluminum layers extend through the perforations to encapsulate the copper sheet.
- [c8] A dual wall cooking vessel according to claim 5 wherein the aluminum layers have a combined thickness of at least about 3 mm.
- [c9] A dual wall cooking vessel according to claim 1 wherein the thermally conductive material comprises a copper sheet interposed by two laminated sheets of aluminum, each laminate aluminum sheet comprising:
- a) a hard aluminum alloy inner layer,
 - b) two layers of a softer aluminum or an alloy thereof surrounding the hard aluminum inner layer.
- [c10] A dual wall cooking vessel according to claim 1 wherein the inner vessel is fabricated from stainless steel.
- [c11] A dual wall cooking vessel according to claim 1 wherein the outer vessel is fabricated from stainless steel.

[c12] A method of forming a dual wall cooking vessel, the method comprising:

- a) providing a preformed internal body and a preformed external body, each body having a substantially circular bottom surface and surrounded by upward extending walls that terminate at a rim portion,
- b) providing a lamination assembly including;
 - i) a lower aluminum plate having substantially the same lateral dimensions as the bottom of the preformed internal body
 - ii) an upper aluminum plate having a smaller diameter than the lower aluminum plate,
 - iii) the upper and lower plates having disposed there between a layer of copper sheeting, the plates being concentrically aligned with the center of gravity of the copper sheet,
- c) impact bonding the internal body to the external body such that at least a portion of the aluminum layers is extruded into the vertical extending cavity formed between the inner body and the outer body.

[c13] A method of forming a dual wall cooking vessel according to claim 12, the method further comprising the step of concentrically aligning the lamination assembly with the axis of at least one of the internal body or external body prior to said step of impact bonding and welding the concentrically aligned lamination assembly to said body at the center thereof.

[c14] A method of forming a dual wall cooking vessel according to claim 13, wherein the concentrically aligned lamination assembly is welded to the center of the internal and external body prior to said step of impact bonding.

- a) A method of forming a dual wall cooking vessel according to claim 12, the method further comprising the step of concentrically aligning the welded body and lamination assembly with the axis of the other body so that the inner body is nested within the outer body with the lamination assembly disposed there between and welding the lamination assembly to both the inner and outer body prior to said step of impact bonding.
- [c15] A method of forming a dual wall cooking vessel according to claim 11 wherein the aluminum plate in contact with the inner surface of the outer body has a greater thickness than the aluminum plate in contact with the outer surface of the inner body.
- [c16] A method of forming a dual wall cooking vessel according to claim 11 wherein the lower aluminum plate has a thickness greater than about 3 mm and the upper aluminum plate has a thickness of less than about 4 mm.
- [c17] A method of forming a dual wall cooking vessel according to claim 11 wherein the copper sheet has a plurality of perforations.
- [c18] A method of forming a dual wall cooking vessel according to claim 11 wherein at least one of the upper and lower aluminum plate is a multiple ply laminate of two or more discrete layers, at least one layer comprising aluminum or an alloy thereof
- [c19] A method of forming a dual wall cooking vessel according to claim 11, the method further comprising the step of welding the rim portion of the internal body to the rim portion of the external body.
- [c20] A method of forming a dual wall cooking vessel according to claim 19 further comprising trimming an annular portion of the welded upper and lower rim to form

and upper rim of the dual wall vessel that seal the cavity between the inner and outer body.